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United States Patent [19][11] Patent Number: **5,135,599**

Martin et al.

[45] Date of Patent: **Aug. 4, 1992**[54] **METHOD OF MAKING A TRIPLE LUMEN CATHETER**

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[73] Assignee: Vas-Cath Incorporated, Mississauga, Canada

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Related U.S. Application Data

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[30] **Foreign Application Priority Data**

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[58] Field of Search 604/39-46, 604/164-169, 264, 280, 283, 284; 264/322, 156/294, 60, 198, 293, 304.2, 304.5, 304.6, 308.2

[56] **References Cited****U.S. PATENT DOCUMENTS**

1,528,869	9/1970	Dereniuk	156/294
3,634,924	1/1972	Blake et al.	29/447
4,072,146	2/1978	Howes	128/205
4,168,703	9/1979	Kenigsberg	604/280
4,251,305	2/1981	Becker et al.	604/103
4,390,383	6/1983	van Dongeren	156/294
4,406,656	4/1983	Hartler et al.	604/280

4,581,968	4/1986	Mahurkar	604/280
4,668,225	3/1987	Russo et al.	604/280
4,670,009	6/1987	Bullock	604/280
4,681,564	7/1987	Landreneau	604/280
4,769,005	9/1988	Ginsburg et al.	604/164
4,813,429	3/1989	Eichel et al.	604/43
4,961,809	10/1990	Martin	603/280
4,968,307	11/1990	Dake et al.	604/280

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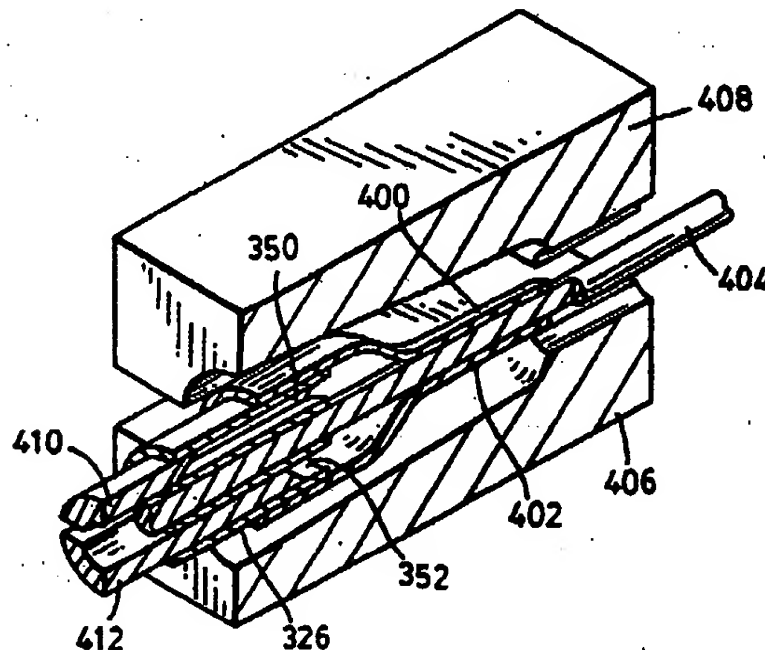
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[57] **ABSTRACT**

A method of manufacturing a multiple lumen catheter with a tapered tip and an end aperture concentric with the main catheter body is described. The method includes providing a flexible elongate body extending about a longitudinal axis having a distal end, a proximal end, an outer wall, a septum extending between spaced points on the outer wall to define first and second lumens, and a third lumen defined about said axis in a central portion of the septum. A straight wire is inserted into the third lumen to project centrally from the distal end of the body and the distal end of the body is then inserted into a tapering mould having a centrally located aperture to receive the wire. The distal end of the body is softened in the mould such that the distal end deforms to a tapered shape with the outer wall of the body merging with the septum to close the first and second lumens. Openings are then formed in the outer wall communicating with the first and second lumens adjacent the distal end.

3 Claims, 9 Drawing Sheets



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